

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 162 (withdrawn): A method for selecting modulators of an isolated protein complex comprising a first protein interacting with a second protein, wherein:

- (a) said first protein is selected from the group consisting of
 - (i) ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~IKK-I~~ IKK-i,
 - (ii) a ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~IKK-I~~ IKK-i fragment capable of interacting with a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730, and
 - (iii) a fusion protein containing ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~IKK-I~~ IKK-i or said ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~IKK-I~~ IKK-i fragment; and
- (b) said second protein is selected from the group consisting of
 - (1) a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730,
 - (2) a fragment of a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730 and capable of interacting with ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR~~ or ~~IKK-I~~ IKK-i, and
 - (3) a fusion protein containing a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730 or said fragment,
- (c) where said isolated protein complex does not comprise IKK-i, an IKK-i fragment or a fusion protein containing IKK-i or an IKK-i fragment as a first

protein interacting with I-TRAF, an I-TRAF fragment or a fusion protein
containing I-TRAF or an I-TRAF fragment as a second protein,

said method comprising:

providing the protein complex;
contacting said protein complex with a test compound; and
detecting a difference in the amount of interaction between said first protein and
said second protein before and after contacting said protein complex with said test
compound.

Claim 163 (canceled)

Claim 164 (currently amended): A method for selecting modulators of an interaction
between a first protein and a second protein,

(a) said first protein being selected from the group consisting of

(i) ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR~~ or ~~IKK-I~~ IKK-i,

(ii) a ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR~~ or ~~IKK-I~~ IKK-i

homologue having an amino acid sequence at least 90% identical to that of
~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR~~ or ~~IKK-I~~ IKK-i and capable
of interacting with a protein selected from the group consisting of LDHM,
EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, TRAF I-TRAF,
~~NUMA1~~ NUMA1, SPA-1, PN13730,

(iii) a ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR~~ or ~~IKK-I~~ IKK-i

fragment capable of interacting with a protein selected from the group
consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1,
GBDR1, TRAF I-TRAF, ~~NUMA1~~ NUMA1, SPA-1, PN13730, and

(iv) a fusion protein containing ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg,
~~OR~~ or ~~IKK-I~~ IKK-i, said ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR~~ or
~~IKK-I~~ IKK-i homologue or said ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg,
~~OR~~ or ~~IKK-I~~ IKK-i fragment; and

(b) said second protein being selected from the group consisting of

(1) LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730,

(2) a homologue of a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730 having an amino acid sequence at least 90% identical to that of said protein and capable of interacting with ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKg~~ IKKg, ~~OR~~ or ~~IKK-i~~ IKK-i,

(3) a fragment of a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730 and capable of interacting with ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKg~~ IKKg, ~~OR~~ or ~~IKK-i~~ IKK-i, and

(4) a fusion protein containing a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730, said protein homologue or said protein fragment,

(c) where said interaction does not occur between IKK-i, an IKK-i fragment or a fusion protein containing IKK-i or an IKK-i fragment as a first protein and I-TRAF, an I-TRAF fragment or a fusion protein containing I-TRAF or an I-TRAF fragment as a second protein,

said method comprising:

contacting said first protein with said second protein in the absence and the presence of a test compound; and

detecting differences in the amount of interaction between said first protein and said second protein in the absence and the presence of a test compound.

Claim 165 (previously presented): The method of Claim 164, wherein at least one of said first and second proteins is a fusion protein having a detectable tag.

Claim 166 (previously presented): The method of Claim 164, wherein said contacting step is conducted in a substantially cell free environment.

Claim 167 (withdrawn): The method of Claim 164, wherein the interaction between said first protein and said second protein is determined in a host cell.

Claim 168 (withdrawn): The method of Claim 167, wherein said host cell is a yeast cell.

Claim 169 (previously presented): The method of Claim 164, wherein said determining step comprises measuring the amount of the protein complex formed by said first and second proteins.

Claim 170 (cancelled)

Claim 171 (currently amended): A method for selecting modulators of an isolated protein complex comprising a first protein interacting with a second protein, wherein:

(a) said first protein is selected from the group consisting of

(i) ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~IKK-I~~ IKK-i,

(ii) a ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~IKK-I~~ IKK-i fragment capable of interacting with a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730, and

(iii) a fusion protein containing ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~IKK-I~~ IKK-i or said ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~IKK-I~~ IKK-i fragment; and

(b) said second protein is selected from the group consisting of

(1) a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730,

(2) a fragment of a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730 and capable of interacting with ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR~~ or ~~IKK-I~~ IKK-i, and

(3) a fusion protein containing a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~NUMA1~~ NUMA1, SPA-1, PN13730 or said fragment,
(c) where said isolated protein complex does not comprise IKK-i, an IKK-i fragment or a fusion protein containing IKK-i or an IKK-i fragment as a first protein interacting with I-TRAF, an I-TRAF fragment or a fusion protein containing I-TRAF or an I-TRAF fragment as a second protein,

said method comprising:

contacting said protein complex with a test compound; and
detecting a difference in the amount of interaction between said first protein and said second protein before and after contacting said protein complex with said test compound.

Claim 172 (cancelled)

Claim 173 (withdrawn): A method for selecting modulators of an interaction between a first polypeptide and a second polypeptide, said first polypeptide being ~~IKKB~~ IKKb, ~~IKKa~~ IKKa, ~~IKKg~~ IKKg, ~~OR or IKK-i~~ OR or IKK-i or a homologue or fragment thereof and said second polypeptide being a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~NUMA1~~ NUMA1, SPA-1, PN13730 or a homologue or fragment thereof, said method comprising:

providing in a host cell a first fusion protein having said first polypeptide, and a second fusion protein having said second polypeptide, wherein a DNA binding domain is fused to one of said first and second polypeptides while a transcription-activating domain is fused to the other of said first and second polypeptides;
providing in said host cell a reporter gene, wherein the transcription of the reporter gene is controlled by the interaction between the first polypeptide and the second polypeptide;
allowing said first and second fusion proteins to interact with each other within said host cell in the absence and presence of a test compound; and

determining differences in the expression of said reporter gene in the presence and absence of the test compound.

Claim 174 (withdrawn): The method of Claim 173, wherein said host cell is a yeast cell.

Claim 175 (currently amended): A method for selecting compounds capable of interfering with the interaction between a first protein and a second protein, wherein

(a) said first protein is selected from the group consisting of

(i) ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR or IKK-I~~ IKK-i,

(ii) a ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR or IKK-I~~ IKK-i

homologue having an amino acid sequence at least 90% identical to that of ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR or IKK-I~~ IKK-i and capable of interacting with a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF 1~~ I-TRAF, ~~NUMA1~~ NUMA1, SPA-1, PN13730,

(iii) a ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR or IKK-I~~ IKK-i

fragment capable of interacting with a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF 1~~ I-TRAF, ~~NUMA1~~ NUMA1, SPA-1, PN13730, and

(iv) a fusion protein containing ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR or IKK-I~~ IKK-i, said ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR or IKK-I~~ IKK-i homologue or said ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR or IKK-I~~ IKK-i fragment; and

(b) said second protein is selected from the group consisting of

(1) LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF 1~~ I-TRAF, ~~NUMA1~~ NUMA1, SPA-1, PN13730,

(2) a homologue of a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF 1~~ I-TRAF, ~~NUMA1~~ NUMA1, SPA-1, PN13730 having an amino acid sequence at least 90% identical to that of said protein and capable of

interacting with ~~IKK β~~ IKK β , ~~IKK α~~ IKK α , ~~IKK γ~~ IKK γ , ~~OR or IKK-1~~
IKK-i,

(3) a fragment of a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730 capable of interacting with ~~IKK β~~ IKK β , ~~IKK α~~ IKK α , ~~IKK γ~~ IKK γ , ~~OR or IKK-1~~ IKK-i, and

(4) a fusion protein containing a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730, said protein homologue or said protein fragment,

(c) where said interaction does not occur between IKK-i, an IKK-i fragment or a fusion protein containing IKK-i or an IKK-i fragment as a first protein and I-TRAF, an I-TRAF fragment or a fusion protein containing I-TRAF or an I-TRAF fragment as a second protein,

said method comprising:

contacting said first protein with said second protein in the presence of a test compound and detecting the interaction between said first protein and said second protein; and

contacting said first protein with said second protein in the absence of said test compound and detecting the interaction between said first protein and said second protein.

Claim 176 (previously presented): The method of Claim 175, wherein said contacting steps are conducted in a substantially cell free environment.

Claim 177 (withdrawn): The method of Claim 175, wherein said contacting steps are conducted in a host cell.

Claim 178 (currently amended): The method of Claim 175, wherein

the first protein is a fusion protein containing ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR~~ or ~~IKK-I~~ IKK-i or said ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR~~ or ~~IKK-I~~ IKK-i fragment,

and said second protein is a fusion protein containing a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730 or said protein fragment,

but said interaction does not occur between a fusion protein containing IKK-i or an IKK-i fragment as a first protein and a fusion protein containing I-TRAF or an I-TRAF fragment as a second protein.

Claim 179 (cancelled)

Claim 180 (withdrawn): A method for providing modulators of a protein-protein interaction of an isolated protein complex comprising a first protein interacting with a second protein, wherein:

(a) said first protein is selected from the group consisting of

- (i) ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~IKK-I~~ IKK-i,
- (ii) a ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~IKK-I~~ IKK-i fragment capable of interacting with a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730, and
- (iii) a fusion protein containing ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~IKK-I~~ IKK-i or said ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~IKK-I~~ IKK-i fragment; and

(b) said second protein is selected from the group consisting of

- (1) a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730,
- (2) a fragment of a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~ I-TRAF,

~~N-UMA1~~ NUMA1, SPA-1, PN13730 and capable of interacting with
~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, OR ~~or~~ ~~IKK-i~~ IKK-i, and
(3) a fusion protein containing a protein selected from the group consisting
of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1,
~~TRAF~~ I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730 or said fragment,
(c) where said isolated protein complex does not comprise IKK-i, an IKK-i
fragment or a fusion protein containing IKK-i or an IKK-i fragment as a first
protein interacting with I-TRAF, an I-TRAF fragment or a fusion protein
containing I-TRAF or an I-TRAF fragment as a second protein,

said method comprising:

providing atomic coordinates defining a three-dimensional structure of the protein
complex; and
designing or selecting compounds capable of modulating the interaction between
the first and second proteins based on said atomic coordinates.

Claim 181 (cancelled)

Claim 182 (withdrawn): A method for providing antagonists of a protein-protein
interaction of an isolated protein complex comprising a first protein interacting with a
second protein, wherein:

- (a) said first protein is selected from the group consisting of
- (i) ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~IKK-i~~ IKK-i,
 - (ii) a ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~IKK-i~~ IKK-i fragment
capable of interacting with a protein selected from the group consisting of
LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF~~
I-TRAF, ~~N-UMA1~~ NUMA1, SPA-1, PN13730, and
 - (iii) a fusion protein containing ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg,
~~IKK-i~~ IKK-i or said ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~IKK-i~~ IKK-i
fragment; and
- (b) said second protein is selected from the group consisting of

- (1) a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF I-TRAF~~, ~~N-UMA1~~ NUMA1, SPA-1, PN13730,
 - (2) a fragment of a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF I-TRAF~~, ~~N-UMA1~~ NUMA1, SPA-1, PN13730 and capable of interacting with ~~IKKB~~ IKKb, ~~IKKA~~ IKKa, ~~IKKG~~ IKKg, ~~OR~~ or ~~IKK-I~~ IKK-i, and
 - (3) a fusion protein containing a protein selected from the group consisting of LDHM, EIF3S10, SLAP2, KIAA0614, ~~SART1~~ SART-1, GBDR1, ~~TRAF I-TRAF~~, ~~N-UMA1~~ NUMA1, SPA-1, PN13730 or said fragment;
- (c) where said isolated protein complex does not comprise IKK-i, an IKK-i fragment or a fusion protein containing IKK-i or an IKK-i fragment as a first protein interacting with I-TRAF, an I-TRAF fragment or a fusion protein containing I-TRAF or an I-TRAF fragment as a second protein,

said method comprising:

- providing atomic coordinates defining a three-dimensional structure of the protein complex; and
- designing or selecting compounds capable of interfering with the interaction between the first and second proteins based on said atomic coordinates.